Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules	)	
with Regard to the 3650-3700 MHz	)	ET Docket No. 98-237
Government Transfer Band	)	

NOTICE OF PROPOSED RULE MAKING AND ORDER

Adopted: December 17, 1998 **Released: December 18, 1998**

Comment Date: [30 days from publication in the Federal Register]
Reply Comment Date: [45 days from publication in the Federal Register]

By the Commission:

I. INTRODUCTION

1. By this action, we propose to allocate the 3650-3700 MHz band to the non-Government fixed service on a primary basis.[1] We envision that this spectrum will be used to provide a broad range of new fixed point-to-point and point-to-multipoint services, directly linking residences, businesses, and other fixed locations to an ever-developing array of networks.[2] Through these new links, traditional voice telephony and a wide variety of new broadband, high-speed, data and video services, such as Internet access and video conferencing, could be delivered to the home and to small businesses. This new fixed service may thus lead to new and more effective competition to existing wireline local exchange carrier services by providing for an economical means to offer competitive "local loop" or "last-mile" facilities. One such service that could operate in this band is Fixed Wireless Access ("FWA"),[3] but we do

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[1] The fixed service is a radiocommunication service between specified fixed points. *See* 47 C.F.R. § 2.1.

[2] A point-to-point system establishes a connection between two end points only and generally uses directional antennas. A point-to-multipoint system establishes connections between a single specified point and more than one other specified points and generally uses omni-directional antennas (at the single specified point).

[3] The term "fixed wireless access" was adopted at the 1997 ITU Radiocommunication Assembly. *See* ITU-R Document RA97/PLEN/22. It denotes the connection between the User Network Interface and the PSTN Local Exchange Service Node Interface. *See* [Preliminary] Draft New Recommendation ITU-R [8A9B-TG2/BB], entitled "Performance and Availability Requirements and Objectives for Fixed Wireless Access (FWA) to PSTN," dated July 17, 1998. The latter document classifies wireless access systems, according to their performance objectives and requirements, among the following three types:

Type-1: Analog signals such as voice and voice band data rates of 64 kilobits per second ("kbps") and below (Minimum 3.1 kHz audio as identified in ITU-T Recommendation G.174).

not intend to constrain use of the band only to that purpose. In addition, we intend that this proposal will be helpful in achieving the overarching goal of Section 706 of the Telecommunications Act of 1996, to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans . . . by utilizing . . . measures that promote competition in the local telecommunications market."[4]

2. To ensure that adequate opportunities exist for the provision of fixed services in the 3650-3700 MHz band, we will no longer accept applications for use of this band by new or major modified earth station facilities in the fixed-satellite service ("FSS"),[5] as of the release date of this *Notice of Proposed Rule Making and Order*. Existing earth stations, however, will be grandfathered. We also propose to delete the existing Government and non-Government radiolocation service[6] allocations from the 3650-3700 MHz band, but will grandfather three existing Government radiolocation sites.[7] In addition, we propose to delete the unused Government aeronautical radionavigation service[8] allocation from the 3650-3700 MHz band.

Type-2: Access bearer service from 64 kbps to below the ISDN primary rate.
Type-3: Digital services operating at the ISDN primary rate or above.
FWA includes "wireless local loop" service, a term which often connotes POTS-equivalent service.

[4] Pub.L. 104-104, Title VII, § 706, Feb. 8 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157 ("Section 706"). Section 706(c)(1) defines "advanced telecommunications capability . . . without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology." *See generally Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket 98-146, *Notice of Inquiry*, FCC 98-187, released August 7, 1998 (*"Section 706 NOI"*).

[5] The fixed-satellite service is a radiocommunication service between earth stations at given points, when one or more satellites are used; the given position may be a specified point or any point within specified areas. In some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service. The fixed-satellite service may also include feeder links for other space radiocommunication services. *See* 47 C.F.R. § 2.1.

[6] Radiolocation is radiodetermination used for purposes other than those of radionavigation. Radiodetermination is the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves. Radar is a radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined. *See* 47 C.F.R. § 2.1.

[7] As discussed in ¶ 16 below, Government radiolocation stations at three sites will retain authority to continue operations on a primary basis. The allocation status of these grandfathered sites will be reflected in a new United States footnote to be added to the Table of Frequency Allocations, 47 C.F.R. § 2.106.

[8] The aeronautical radionavigation service is a radionavigation service intended for the benefit and for the safe operation of aircraft. Radionavigation is radiodetermination used for the purposes of navigation, including obstruction warning. *See* note 6, *supra*, and 47 C.F.R. § 2.1.

Finally, we request comment on whether, to realize the full potential benefits of this spectrum, the band should be offered for license as a single 50 megahertz block on either a nationwide or large regional service area basis.

II. BACKGROUND

3. Historically, the 3500-3700 MHz band was exclusive Government spectrum, allocated to the radiolocation service on a primary basis.[9] Subsequently, the band was also allocated to the non-Government radiolocation service on a secondary basis, but this allocation is unused.[10] In 1984, the Commission added an allocation in the 3600-3700 MHz band for the FSS (space-to-Earth),[11] but adopted footnote US245 to restrict use of this FSS allocation "to international inter-continental systems . . . subject to case-by-case electromagnetic compatibility analysis." The restricted allocation was aimed narrowly at meeting "future INTELSAT projected requirements,"[12] and, thus far, we have licensed approximately 65 earth stations, each employing

[9] Internationally, the 3500-3700 MHz band is allocated to the fixed and fixed-satellite (space-to-Earth) services on a worldwide, co-primary basis. In ITU Regions 2 (the Americas) and 3 (much of Asia and Australia), the 3500-3700 MHz band is also allocated to the mobile except aeronautical mobile service on a primary basis and to the radiolocation service on a secondary basis, except that in Japan the radiolocation service is excluded from the 3620-3700 MHz segment. In ITU Region 1 (Europe and Africa), the 3600-3700 MHz band is also allocated to the mobile service on a secondary basis.

[10] We note that the 1979 World Administrative Radio Conference downgraded the primary Region 2 and 3 radiolocation service allocation at 3400-3700 MHz to secondary status, but adopted international footnote 784 (now S5.433), which reads as follows: "In Regions 2 and 3, in the band 3400-3600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service." *See* ITU *Final Acts of the World Administrative Radio Conference, Geneva, 1979*, page 121.

[11] *See Amendment of Part 2 of the Commission's Rules Regarding Implementation of the Final Acts of the World Administrative Radio Conference, Geneva, 1979*, General Docket 80-739, *Second Report and Order*, 49 Federal Register 2357 (January 19, 1984). The Commission also allocated the 5850-5925 MHz band to the FSS (Earth-to-space). The 3625-3700 MHz downlink segment and the 5850-5925 MHz uplink band are traditionally known as "extended C-band" (the 3700-4200 MHz downlink band and the 5925-6425 MHz uplink band are known as C-band). This same proceeding also allocated the 3500-3700 MHz band to the Government aeronautical radionavigation service (ground-based) on a primary basis, and stated that this expansion band would be used only "where accommodation in the 2700-2900 MHz band is not technically and/or economically feasible." *See* 47 C.F.R. § 2.106, footnote G110. In the *Final Report* (see note 16 *infra*) the Federal Aviation Administration ("FAA") states that it "is currently not using this band," but that future air traffic growth could require additional frequencies to support radar surveillance.

[12] *Id.*, at ¶ 58. Currently, only the International Telecommunication Satellite Organization ("INTELSAT") and International Mobile Satellite Organization ("INMARSAT") use these bands. Specifically, INTELSAT uses the 3625-4200 MHz band for its downlinks and 5850-6425 MHz for its uplinks. The INMARSAT Second Generation (II) satellite system uses 3600-3620 MHz for its downlinks and 6425-6440 MHz for its uplinks. INMARSAT III uses 3599-3629 MHz for its downlinks and 6424-6454 MHz for its uplinks.

large antennas.[13] See Spectrum Chart, *infra* ¶ 8.

4. In February 1995, NTIA, pursuant to the Omnibus Budget Reconciliation Act of 1993 ("OBRA-93"),[14] identified the 3650-3700 MHz band for transfer, effective January 1999, from a Government/non-Government shared use status to a mixed-use status.[15] As a condition of the transfer, Government radiolocation stations may continue to operate indefinitely in the 3650-3700 MHz band at Pascagoula, Mississippi; Pensacola, Florida; and Saint Inigoes, Maryland, and NTIA states that the "radius of operation" for these stations is 80 kilometers (49.7 miles).[16] In addition, given that multi-megawatt Government mobile radar systems will continue to operate in the 3300-3700 MHz band, NTIA recommends that, in order to achieve satisfactory commercial service in the 3650-3700 MHz band, the Commission "adopt effective transmitter emission and receiver selectivity standards to minimize interference to and from Government systems operating in the band."[17] We also note that the Navy stated that it uses the 3650-3700 MHz band:

> for shipborne radars that serve as the primary air traffic control radar aboard aircraft carriers. . . . These radars have a tuning range of 3590-3700 MHz; however, Navy maintains that they almost exclusively operate the radars between 3640 MHz and 3670 MHz. . . . Navy also states that the high-powered multifunction radars employed by the AEGIS cruisers and destroyers operate in the adjacent-band. Navy is concerned that the high-powered emissions of these

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[13] We have authorized approximately 63 earth stations to work with INTELSAT and INMARSAT satellite systems and two earth stations to provide TT&C for the Echostar satellite system (in contrast, there are approximately 5,000 C-band earth stations). These 65 earth stations employ antennas that range in diameter from 7 meters to 16 meters (23-52 feet). The large size of these antennas permit highly directional reception of weak satellite signals, thus enabling these earth stations to co-exist with high-powered radars. We observe that the function of the case-by-case electromagnetic compatibility analysis requirement was to guide licensees in locating earth stations away from areas where high-powered Government radars operate, thus preserving Government access to this shared spectrum in much of the geographic area of the country.

[14] *See* Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6001(a)(3), 107 Stat. 312 (enacted August 10, 1993); *see also* H.R. Rep. No. 103-213, 103rd Cong., 1st Sess. (1993).

[15] *See Spectrum Reallocation Final Report, Response to Title VI - Omnibus Budget Reconciliation Act of 1993,* NTIA Special Publication 95-32, released February 1995 ("*Final Report*").

[16] At the time the *Final Report* was issued, the AN/SPN-43 site at Memphis, TN was identified as one of the three sites that would be grandfathered. However, the Memphis site has since been closed as a result of Base Realignment and Closure ("BRAC") actions. As result of the base closure, those Memphis facilities supporting the critical AN/SPN-43 functions were moved to Pensacola, FL. Frequency assignment action for the operation of the AN/SPN-43 at Pensacola, FL was initiated in June 1995, and was approved through the NTIA assignment process in October 1995.

[17] *See Final Report*, *supra* note 15, at p. 4-20. NTIA notes that the Telecommunications Industry Association ("TIA") and the National Association of Business and Education Radio ("NABER") recommend adopting regulatory or industry receiver standards for new equipment in the reallocated band to enhance sharing. *See id.* at 2-37 (citing TIA's May 11, 1994 Comments and NABER's June 15, 1994 Comments).

> radars could result in interference to inadequately designed non-Federal equipment. Navy believes that a 50 MHz guard band is needed as well as receiver interference rejection capability and possibly geographic restrictions on non-Federal equipment to achieve compatible sharing in this band.[18]

In addition, the Air Force observes that the spectrum below the 3650-3700 MHz band is used for highly mobile, extremely high-powered radar systems, and notes that there are numerous documented cases of these radars causing interference to C-band FSS receivers.[19] The Air Force believes that the problem will only worsen for any satellite receivers that operate below 3700 MHz and, therefore, recommends imposition of a 50 megahertz guard band and implementation of strict non-Government receiver selectivity and transmitter emission standards in order to minimize interference to and from these radar systems.

5. In March 1996, the Commission, pursuant to OBRA-93, adopted a *Plan for Reallocated Spectrum*.[20] The plan indicates that the 3650-3700 MHz band could perhaps be used for additional FSS services. In regard to potential terrestrial service in the 3650-3700 MHz band, the plan stresses that the amount of spectrum in the band is insufficient to provide for the 40 megahertz transmit/receive separation that is used by the existing point-to-point microwave service at 3700-4200 MHz.[21]

III. DISCUSSION

A. Fixed Service Proposal

6. An important spectrum management goal of the Commission for terrestrial commercial wireless services is to promote efficient and flexible use of the electromagnetic spectrum while enabling licensees to use the spectrum free of harmful interference. Specifically for the 3650-3700 MHz band, our reallocation decision must accommodate continued use of the band for incumbent earth station reception of FSS signals -- which are significantly weaker than the anticipated terrestrial service signals -- and for incumbent high-powered Government radars

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[18] *Id.*, at p. 4-18.

[19] *Id.*, at pp. 4-18 and 4-19. We also observe that, in July 1994, NTIA released a *Report* examining the susceptibility of C-band earth station reception (3700-4200 MHz) to interference from radar signals in the 2700-3700 MHz band and the mechanisms by which such interference could occur. The *Report* concluded, *inter alia,* that appropriate RF filtering on either the radar transmitter RF output or the earth station RF input is necessary to prevent interference, but the particular filtering scheme needed depends critically upon the interference coupling mechanism. *See Analysis of Electromagnetic Compatibility Between Radar Stations and 4 GHz Fixed-Satellite Earth Stations*, NTIA Report 94-313, by F.H. Sanders, R.L. Hinkle and B.J. Ramsey.

[20] *See* 11 FCC Rcd 17841 (1996).

[21] *Id.*, at ¶ 55. *See* 47 C.F.R. § 101.147(h).

transmitting from three grandfathered sites. Moreover, our decision must account for the extremely high emissions that are produced by high-powered Government fixed and mobile radar operations in adjacent spectrum below 3650 MHz. In light of this challenging spectrum sharing environment, as discussed below, we tentatively find that mobile service use of the 3650-3700 MHz band would be severely constrained but that the band is well suited for fixed service use. Nonetheless, we believe that there is a broad range of fixed services that could operate in this spectrum. In particular, a fixed service allocation in this band may facilitate an alternative means of providing basic telephone service,[22] thus mitigating the impact of the local loop bottleneck and fostering a competitive market structure for direct PSTN access to residential and small business consumers. A fixed service allocation also may be used to provide broadband access to the Internet, thus furthering the general objectives of Section 706 to bring competitive, advanced telecommunications capability to all Americans.[23]

7. Internationally, this type of fixed service is known as FWA and there is strong interest in providing for these services in the 3400-3700 MHz frequency range, especially the 3400-3600 MHz band.[24] In the United States, the 3400-3600 MHz band is not available because it is heavily used by the military, thus allocation of alternative or additional spectrum that could be used for this type of service may be desirable.[25] We believe that the 3650-3700 MHz band is viable for the provision of some types of FWA services. Accordingly, we propose to allocate the 3650-3700 MHz band to the fixed service on a co-primary basis with incumbent non-

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[22] For example, a fixed service allocation could be used to provide unserved persons with a wireless connection to the public switched telephone network ("PSTN") and to serve economically high-cost wireline service areas, including rural areas.

[23] As we recently articulated in the Section 706 NOI, a primary goal of the Commission is to assure that advanced telecommunications capability can be ubiquitously deployed to all Americans. In undertaking this task, it is appropriate to evaluate new spectrum allocations for their suitability in facilitating achievement of this goal. The size of the instant allocation before us, 50 megahertz of spectrum, appears sufficiently large to potentially allow for another competitive alternative for direct connection of advanced telecommunications services to some homes, small businesses, and less populated areas of the country.

[24] Commercial deployment of fixed wireless access services in the 3400-3700 MHz band has already commenced internationally. For example, the Mexican government has specified that the 3400-3700 MHz band is to be used for local wireless telephony and has recently auctioned this band. The Canadian government has authorized trials of Nortel's Proximity-I system, which is also used in the United Kingdom. *See also* "Update on Fixed Wireless Access in Canada (Updated paper)," at http://www.tsacc.ic.gc.ca/RAST6/DOCS/rast-6-14.html. Domestically, Lucent Technologies and Interdigital Communications Corp. are conducting fixed wireless access experiments in the 3400-3600 MHz band for the export market.

[25] On September 22, 1998, Mountain Telecommunications, Inc. ("MountainTel") was granted an experimental radio station construction permit and license (File No. 6120-EX-PL-1998). MountainTel is conducting a pilot study deploying Nortel's Proximity I Fixed Wireless Access system in the 3425-3442 MHz and 3475.688-3492.688 MHz bands on the Salt River Pima Maricopa Indian Community reservation near Scottsdale, Arizona. For this pilot study, MountainTel is planning to deploy up to three base stations, which would interface directly with MountainTel's existing local exchange switch and would support up to 150 end-users (65 of whom would receive telephone service for the first time).

Government FSS earth stations and with Government radiolocation operations from three grandfathered sites. However, in keeping with our policy favoring a licensee's innovative use of the spectrum in response to consumer market demand, we do not intend to designate the allocation for, or to limit use of this spectrum to, FWA services. Thus, the extent to which FWA -- or any other particular fixed services -- would be implemented in the proposed allocation would be determined solely by market forces. We anticipate that this spectrum will be initially licensed by competitive bidding pursuant to the authority granted under Section 309(j) of the Communications Act. We seek comment on our proposal.

8. During the coordination process, NTIA informed us that the recently enacted statutory provision concerning payment of the relocation costs of Federal entities[26] does not apply to the 3650-3700 MHz band. Based on our own independent analysis, we reach the same conclusion. See the spectrum chart, below, for an overview of the existing uses of the 3400-4200 MHz frequency range, and our reallocation proposal for the 3650-3700 MHz band.

[26] *See* Section 113(g)(1)(F) of the National Telecommunications and Information Administration Organization Act (*added by* Section 1064(c)(3) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, PL 105-261, October 17, 1998, 112 Stat. 1920), *to be codified at* 47 U.S.C. § 923(g)(1)(F).

<table>
<tr><th colspan="3">Spectrum Chart: Overview of the 3400-4200 MHz Frequency Range</th></tr>
<tr><td>3400-3650 MHz</td><td>3650-3700 MHz</td><td>3700-4200 MHz</td></tr>
<tr><td colspan="2">Existing: high-powered Government radar operations and unused commercial radar allocation in the 3400-3700 MHz frequency range in U.S. Also, non-Government international inter-continental FSS in the 3600-3700 MHz band (of which the 3625-3700 MHz band is traditionally known as the "extended C-band") and unused Government aeronautical radionavigation allocation in the 3500-3700 MHz band</td><td rowspan="3">C-band FSS and point-to-point fixed microwave services in the U.S.</td></tr>
<tr><td>Unaffected by Proposal: high-powered Government radar operations continue in the U.S. in the 3400-3650 MHz band, which also remains available for future commercial radar operations. Also, the 3600-3650 MHz band remains allocated for non-Government international inter-continental FSS and the 3500-3650 MHz band remains allocated to the Government aeronautical radionavigation service</td><td>Proposal: Allocate the 3650-3700 MHz band to the non-Government fixed service, grandfather FSS earth stations, and institute FSS freeze. Also, delete the Government radar (except at 3 grandfathered sites), the unused Government aeronautical radionavigation, and unused commercial radar allocations from the band</td></tr>
<tr><td colspan="2">Worldwide interest in FWA services in the 3400-3700 MHz frequency range, particularly the 3400-3600 MHz band, with the 3600-3700 MHz band considered a possible expansion band; Mexico has already auctioned the 3400-3600 MHz band for FWA; interest in 3600-3700 MHz band for TT&C downlinks for broadband multimedia satellites</td></tr>
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9. Commenters should also address various technical issues pertinent to fixed service use of the 3650-3700 MHz band, including FWA. For example, we are aware that existing FWA technology deployed internationally in the 3400-3600 MHz band uses Frequency Division Duplex ("FDD") technology with either a 50- or 100-megahertz separation between transmit and receive channels. The amount of spectrum available in the instant allocation, however, lends itself to a maximum separation of 25-megahertz, which may be insufficient to support traditional FDD technology. Nevertheless, fixed services using Time Division Duplex ("TDD") technology may be viable in the band. We request comment on these technical issues. Commenters should address whether FDD technology could be successfully developed and deployed in this band and whether TDD technology deployment in the band is likely to be viable for service to consumers.

10. We also want to consider the ramifications of our allocation proposal for the development of service rules in a subsequent rulemaking proceeding. Generally, we request comment on whether the Local Multipoint Distribution Service ("LMDS") (Part 101, Subparts L and M) or Wireless Communications Service ("WCS") (Part 27) service rules, modified as necessary, or an entirely new set of service rules, should be applied to the fixed services offered pursuant to the new allocation. Specifically, in view of the limited amount of spectrum subject to the proposed allocation and the significant pertinent technical constraints, we request comment on how a choice of initial spectrum licensing blocks and geographic service areas will, in light of the current state of technology, affect the viability in the band of the various fixed services, including FWA.[27] In particular, we seek comment on the size of the spectrum blocks within the 3650-3700 MHz band that should be offered for initial licensing. For instance, should the spectrum be initially licensed as a single 50-megahertz block or would the various fixed services still be viable if initially licensed as two or more blocks of spectrum? If the latter, should the spectrum be initially offered as contiguous or paired blocks and, if paired blocks, should they be symmetric or asymmetric in size. In addition, we seek comment on the appropriate geographic size of service areas for initial licensing. Specifically, we request comment on whether, in order to facilitate widespread competition in the "local loop" or "last-mile" facilities market, the band should be initially licensed for a single nationwide service area, or for several large regional service areas,[28] or for some other choice of smaller geographic service areas. We invite comment on the competitive ramifications of offering only a single license, covering the entire 50 megahertz of spectrum nationwide. For example, could such a sole licensee garner an economic monopoly or have undue market power, or would it face adequate competition from wireline and wireless service providers? To what extent, if any, would imposition of licensee eligibility requirements affect the answer to the preceding question?

11. As pointed out above,[29] the specific radio frequency environment for the 3650-3700 MHz band in the United States raises additional technical issues. Any new service in the band must be able to co-exist with extremely high-powered Government mobile radar systems in the adjacent 3300-3650 MHz band, as well as with occasional high-powered in-band use at three grandfathered sites (Pascagoula, Mississippi; Pensacola, Florida; and Saint Inigoes, Maryland). We request comment on what actions we should take to promote the ability of new services to

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[27] Consistent with existing Commission policy, we intend to permit the initial fixed licensee(s) of the 3650-3700 MHz band to partition the geographic service area and to disaggregate spectrum. *See Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Services Licensees*, WT Docket No. 96-148, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 21831 (1996).

[28] If regional licensing is adopted, we intend to propose a requirement that the predicted or measured median field strength at any location on the border of the service area not exceed 54 dBμV/m, unless the affected licensees agree to a higher field strength limit.

[29] *See supra* ¶ 6.

co-exist with these radars. Also, given the need to protect adjacent band FSS earth station reception, we request comment on whether the out-of-band emissions limit of 43 + 10 log (P) dB[30] should be applied to the proposed fixed service allocation. In addition, we request comment on whether Very Small Aperture Terminals ("VSATs") should be precluded from operating in spectrum immediately adjacent to the new fixed service allocation, perhaps by requiring a 3.5-meter diameter minimum antenna size for earth stations licensed to receive the 3700-3720 MHz segment.[31]

12. As part of our evaluation of the 3650-3700 MHz band for the proposed fixed service, we are cognizant of the need to protect earth station reception of very weak signals transmitted by geostationary orbit FSS satellites in the band. We are disinclined, however, to apply to this band the spectrum sharing criteria now used in the adjacent 3700-4200 MHz band. In particular, we note that the maximum equivalent isotropically radiated power ("e.i.r.p.")[32] limit now employed for long-haul fixed point-to-point transmissions in the 3700-4200 MHz band -- 55 dBW per polarization -- appears inappropriate for short-haul fixed point-to-multipoint services that licensees may wish to provide in the 3650-3700 MHz band.[33] Specifically, we observe that high-power, fixed point-to-point operations co-exist with C-band earth stations because of the extremely large coordination distances employed in siting new facilities; but these coordination distances may unnecessarily constrain the deployment in the band of fixed links that require less power. For instance, one frequency coordinator, Comsearch, requires coordination of all new C-band microwave stations that would be located within a 125-mile radius around any FSS earth station operating in C-band. This coordination method, however, appears too onerous for other fixed services that could use the 3650-3700 MHz band. Instead, if appropriately more restrictive power limits were imposed on some fixed service uses of this band, *e.g.,* FWA, we believe that the viability of these services in the band would be unaffected and that the coordination distance requirement could be significantly reduced. For example, we could subject certain fixed stations transmitting in the 3650-3700 MHz band to power limits similar to those now employed for Broadband PCS, *i.e.,* a base station height/power limit of 1640 watts peak e.i.r.p. with an antenna

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[30] This is the out-of-band emission limit that is used for Broadband PCS. *See* 47 C.F.R. § 24.238 - Emission limits. In no case would we permit the peak output power ("P") of a hub station transmitter to exceed 100 watts. *See* 47 C.F.R. § 24.232. Thus, the out-of-band emission limit (43 + 10 log (100)) would require that a maximum, 100-watt signal be attenuated by 63 dB at 3700 MHz, which equates to 50 microwatts.

[31] C-band earth stations generally now employ antennas which are 3.5 meters or greater in diameter. Such antennas provide greater immunity from out-of-band interference than VSAT antennas, because VSAT sidelobes are larger in the direction of the hub station transmitter.

[32] Equivalent isotropically radiated power is the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna. *See* 47 C.F.R. § 2.1.

[33] *See* 47 C.F.R. § 101.113 - Transmitter power limitations.

height up to 300 meters (984 feet).[34] We request comment on this issue, and on the appropriate coordination distances needed to protect in-band FSS earth station reception if the above height/power limit and the associated height/power reduction table are ultimately adopted. Commenters should address how the choice of technical parameters affects the viability in the band of various fixed services and their ability to coordinate or share spectrum with FSS earth stations.

B. Other Services

13. FSS. In order to preserve the availability of the 3650-3700 MHz band for the proposed fixed service, license applications for new earth stations, major amendments to pending earth station facilities applications,[35] or applications for major modifications to existing earth station facilities[36] filed on or after the release date of this *Notice of Proposed Rule Making and Order* will not be accepted. The imposition of this interim change in application processing is procedural in nature and, therefore, not subject to the notice and comment and effective date

[34] *See* 47 C.F.R. § 24.232 - Power and antenna height limits. Table 1 from this section, reproduced below, shows the corresponding power reduction necessary for antenna heights above 300 meters:

Height Above Average Terrain ("HAAT") in meters	Maximum e.i.r.p. in watts
≤ 300	1,640
≤ 500	1,070
≤ 1,000	490
≤ 1,500	270
≤ 2,000	160

A "typical" three-sector fixed wireless access link budget, however, demonstrates a demand for power that is substantially less than the amount permitted above: about 45 dBm peak e.i.r.p. for hub station transmit and 42.5 dBm peak e.i.r.p. for subscriber station transmit. *See* Nortel's "Technical Description of Fixed Wireless Access," presented at the October 23, 1997 OET Workshop. We invite comment on whether, for new services in the proposed fixed service allocation at 3650-3700 MHz, specification of the power limits as a maximum e.i.r.p. of 1,000 watts and a maximum HAAT of 600 feet (182.88 meters) would further reduce unnecessary coordination.

[35] *See* 47 C.F.R. § 25.116(b)(1),(4). Major amendments resulting from ownership changes or arising under our environmental processing rule may still be filed and will be accepted. *See* 47 C.F.R. § 25.116(b)(2),(3).

[36] *See* 47 C.F.R. § 25.117. Modifications not requiring prior authorization pursuant to 47 C.F.R. § 25.118 would be unaffected.

requirements of the Administrative Procedure Act ("APA").[37] In addition, we find good cause for imposing immediately this processing change without following these APA requirements because the changes are necessary to preserve the status quo availability of the spectrum for terrestrial wireless services pending the Commission's ultimate determination in this proceeding.[38] Also, in order to permanently implement this action, we propose to add to the United States Table of Frequency Allocations a new non-Government footnote, which would read as follows:

> In the 3650-3700 MHz band and for the fixed-satellite service (space-to-Earth), license applications for new earth stations, major amendments to pending earth station facilities applications, or applications for major modifications to existing earth station facilities filed on or after December 18, 1998 shall not be accepted.

We request comment on this proposal, including on how it affects the ability of FSS licensees to satisfy the demand for international intercontinental downlink capacity in this region of the spectrum. In addition, we seek comment on alternative methods to meet the terrestrial fixed service's needs in the 3650-3700 MHz band while minimizing the effect on FSS operations. Commenters should provide detailed supporting engineering data and analysis in support of their positions.

14. We also seek comment on whether the FSS allocation in the band should be deleted. If so, we seek comment on whether we should propose to grandfather the existing earth stations operating in the band, or allow new fixed service licensees to have the right to require grandfathered earth stations to vacate the band, subject to reimbursement in a manner consistent with the Commission's *Emerging Technologies* relocation policies,[39] or whether, in any event, the allocation status of these earth stations should be changed to secondary after a specified time period, for example, 10 years.

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[37] *See Neighborhood TV Co., Inc. V. FCC*, 742 F.2d 629 (D.C. Cir 1984); *Buckeye Cablevision, Inc. v. United States*, 438 F.2d 948 (6th Cir. 1971); *Kessler v. FCC*, 326 F.2d 673 (D.C. Cir. 1963).

[38] *See* 5 U.S.C. Sec. 553 (b) and (d).

[39] *See generally Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies ("Emerging Technologies")*, ET Docket No. 92-9, *First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886 (1992); *Amendment of the Commission's Rules to Establish New Personal Communications Services*, GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 5947 (1994); *Amendment of the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, WT Docket No. 95-157, *First Report and Order and Second Notice of Proposed Rule Making*, 11 FCC Rcd 8825, App. A, ¶ 3 (1996); *Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, ET Docket No. 95-18, *First Report and Order and Further Notice of Proposed Rule Making*, 12 FCC Rcd 7388 (1997); *aff'd on recon., Memorandum Opinion and Order, Third Notice of Proposed Rule Making, and Order*, ET Docket No. 95-18, released Nov. 25, 1998, 1998 WL 814505 (F.C.C.).

15. Commercial Radar. Also in order to preserve the availability of this spectrum for the proposed fixed service, we propose to delete the unused secondary non-Government radiolocation service allocation at 3650-3700 MHz. We note that there would remain 550 megahertz of secondary non-Government radiolocation service spectrum at 3100-3650 MHz, which we believe is adequate to accommodate current and future non-Government radiolocation services in this frequency range. Further, because we anticipate that the 3650-3700 MHz band is likely to be intensively utilized by the fixed service, deleting this radiolocation allocation would eliminate potential interference problems between these services. We seek comment on this proposal.

16. Government Operations. We propose to delete the Government radiolocation service allocation from the 3650-3700 MHz mixed-use band, except for grandfathering three Government radiolocation sites that would continue operations in the band. This proposal would be implemented by adding a new United States footnote to the Table of Frequency Allocations, which would read as follows:

> In the 3650-3700 MHz band, after January 1, 1999, Government operations in the radiolocation service may continue on a primary basis at three sites: Pascagoula, Mississippi (30° 22' North Latitude, 88° 29' West Longitude); Pensacola, Florida (30° 21' 28" North Latitude, 87° 16' 26" West Longitude); and Saint Inigoes, Maryland (38° 10' North Latitude, 76° 23' West Longitude). The Commission shall coordinate non-Government fixed stations within 80 kilometers of the grandfathered sites on a case-by-case basis with NTIA through the Frequency Assignment Subcommittee. Naval vessels shall not transmit in the 3650-3700 MHz band until the vessel is at least [distance to be determined][40] nautical miles off the coasts of the United States, Puerto Rico, the U.S. Virgin Islands, Guam, the Northern Mariana Islands, and American Samoa.

In addition, we propose to delete the unused Government aeronautical radionavigation service (ground-based) allocation from the band. See Appendix A for conforming revisions to the text of footnotes US110, G59, and G110.[41] We seek comment on these proposals.[42]

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[40] The Commission and NTIA are discussing this issue in the coordination process. We anticipate adopting the distance developed in the coordination process in the Report and Order in this proceeding.

[41] These revised Government footnotes and the proposed United States footnote (USxxx) were prepared in coordination with NTIA.

[42] We are working closely with NTIA to make available the information that potential non-Government licensees will need in order to evaluate the viability of new commercial services in the 3650-3700 MHz band. Specifically, we intend to obtain (1) the coordinates of those geographic areas that would be affected by Government systems (assuming signal line-of-sight propagation for an effective 4/3 Earth radius); and (2) the equipment operating characteristics of the Government systems, including the values of radar broadband transmit noise, the radar's

C. Possibility of Land Mobile Use

17. We observe that in ITU Region 2 (the Americas) the 3650-3700 MHz band is also allocated to the mobile except aeronautical mobile service on a primary basis. We have considered whether to propose domestic adoption of this allocation, *i.e.*, an allocation in the United States for land mobile and maritime mobile uses,[43] but not for aeronautical mobile use. We are aware of the difficulties of sharing spectrum between low-power FSS satellite signals and mobile units.[44] Thus, the Commission has traditionally licensed satellite downlinks in bands that are not used by mobile units. Additionally, during the coordination process, NTIA indicated that mobile service operations within 80 kilometers of the three grandfathered sites should be prohibited in order to protect the low-level radar return signals.[45] In this instant proceeding, we tentatively find that allocating the 3650-3700 MHz band to the fixed service only, and not to the land mobile service, would better protect incumbent Government radar operations and non-Government FSS reception from harmful interference. We request comment on this conclusion and, alternatively, on whether we should allocate the 3650-3700 MHz band to the land mobile service. Commenters supporting a land mobile service allocation should submit detailed supporting engineering data and analysis.

D. Receiver Standards

18. We decline to propose the transmitter emission and receiver selectivity standards that NTIA requested in the *Final Report* because we continue to believe that this matter is best left to market forces. Specifically, we believe that, by making the appropriate technical information available to manufacturers, they will, as a matter of course, take into account the electromagnetic

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e.i.r.p. and spectral characteristics of the e.i.r.p. as a function of frequency. Once NTIA has provided this information, Commission staff will plot the impacted areas and we will make this information available to the public.

[43] In contrast to the land mobile service, in which "listen-before-talk" technology may be used to protect incumbent operations, we know of no practical way to protect incumbent operations from maritime mobile operations.

[44] Specifically, mobile transmitters operating in close proximity to earth station receive antennas could cause harmful interference to, or even overpower, the weak satellite signal. Also, mobile units would receive the satellite signal, which would raise the noise floor, increasing the likelihood of harmful interference, especially in fringe areas.

[45] The radar transmissions at the three grandfathered sites is extremely high-powered. However, the reflected signal is low-powered, and thus could be overpowered by a mobile unit that is transmitting near the radar's receive antenna.

environment when designing and building equipment for the 3650-3700 MHz band.[46] This process, we believe, is most likely to encourage the development and implementation of innovative technology that will promote coexistence with high-powered in-band and adjacent band Government radar operations. We request comment on our proposal.

E. RF Safety

19. With regard to RF safety requirements, we propose to treat stations operating in the 3650-3700 MHz band in a comparable manner to other services and devices that have similar operating characteristics. Sections 1.1307(b), 2.1091, and 2.1093 of our rules list the services and devices for which an environmental evaluation must be performed. Accordingly, we propose that an environmental evaluation for RF exposure would be required for the following operations: 1) fixed stations and base stations (if land mobile operations are permitted) that have an e.i.r.p. greater than 1640 watts; and, 2) land mobile stations (if land mobile operations are permitted), including portable devices, that have operating characteristics or functions similar to cellular, PCS or "covered" SMR services, *i.e.*, operations that are typified by long periods of use or are interconnected to the public switched telephone network. We invite comment on this proposal and welcome the submission of alternative proposals that would ensure public safety with respect to exposure to RF radiation.

IV. PROCEDURAL INFORMATION

20. Initial Regulatory Flexibility Analysis. As required the Regulatory Flexibility Act, *see* 5 U.S.C. § 603, the Commission has prepared an Initial Regulatory Flexibility Analysis ("IRFA") of the possible impact on small entities of the proposals suggested in this document. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments on the rest of the *Notice of Proposed Rule Making and Order*, and they must have a separate and distinct heading designating them as responses to the Initial Regulatory Flexibility Analysis. The Commission's Office of Public Affairs, Reference Operations Division, will send a copy of this *Notice of Proposed Rule Making and Order*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with the

[46] We are working closely with NTIA to make available the information that potential non-Government licensees will need in order to evaluate the viability of new commercial services in the 3650-3700 MHz band. Specifically, we intend to obtain (1) the coordinates of those geographic areas that would be affected by Government systems (assuming signal line-of-sight propagation for an effective 4/3 Earth radius); and (2) the equipment operating characteristics of the Government systems, including the values of radar broadband transmit noise, the radar's e.i.r.p. and spectral characteristics of the e.i.r.p. as a function of frequency. Once NTIA has provided this information, Commission staff will plot the impacted areas and we will make this information available to the public.

Regulatory Flexibility Act, *see* 5 U.S.C. § 603(a).

21. Ex Parte Rules -- Permit-But-Disclose Proceedings. This is a permit-but-disclose notice and comment rule making proceeding. *Ex parte* presentations are permitted, except during any Sunshine Agenda period, provided they are disclosed as provided in the Commission's rules. *See generally* 47 C.F.R. Sections 1.1202(a), 1.1203, and 1.1206.

22. Comment. Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments by **[30 days from publication in the Federal Register]**, and reply comments by **[45 days from publication in the Federal Register]**. Comments may be filed using the Commission's Electronic Comment Filing System ("ECFS") or by filing paper copies. *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24,121 (1998).

23. Comments filed through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply.

24. Parties who choose to file by paper must file an original and four copies of all comments, reply comments and supporting comments. If participants want each Commissioner to receive a personal copy of their comments, an original plus nine comments must be filed. If more than one docket or rulemaking number appear in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to the Commission's Secretary, Magalie Roman Salas, Office of the Secretary, Federal Communications Commission, The Portals, 445 Twelfth Street, S.W., Room TW-A325, Washington, D.C. 20554.

25. All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C.

26. Additional Information. For further information concerning this rule making proceeding contact Tom Mooring at (202) 418-2450, internet: tmooring@fcc.gov, Office of Engineering and Technology, Federal Communications Commission, Washington, DC 20554.

V. ORDERING CLAUSE

27. ACCORDINGLY, IT IS ORDERED that, pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r), this *Notice of Proposed Rule Making and Order* is adopted.

28. IT IS FURTHER ORDERED that, in the 3650-3700 MHz band and for the fixed-satellite service (space-to-Earth), license applications for new earth stations, major amendments to pending earth station applications, or applications for major modifications to existing earth station facilities filed on or after December 18, 1998 shall not be accepted.

29. IT IS FURTHER ORDERED that, in accordance with Section 603(a) of the Regulatory Flexibility Act, 5 U.S.C. § 603(a), the Office of Public Affairs, Reference Operations Division, shall send a copy of this *Notice of Proposed Rule Making and Order*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary

Appendix A: Proposed Rules

Part 2 of title 47 of the Code of Federal Regulations is proposed to be amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

a. Remove the existing entries for 3600-4200 MHz in column (1) and for 3500-4200 MHz in columns (2) through (7).

b. Add entries in numerical order for 3600-4200 MHz in column (1) and for 3500-4200 MHz in columns (2) through (7).

c. In the International Footnotes under heading I., add footnotes S5.433 and S5.4335.

d. In the International Footnotes under heading II., remove footnote 786.

e. Revise footnotes US110, G59, and G110.

f. Add footnotes USxxx and NGxxx.

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§ 2.106 Table of Frequency Allocations

* * * * *

International table			United States table		FCC use designators	
Region 1 -- allocation MHz	Region 2 -- allocation MHz	Region 3 -- allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)
3400 – 3600 (not shown)	3500 – 3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation S5.433		3500 – 3650 AERONAUTICAL RADIONAVIGATION (ground-based) G110 RADIOLOCATION US110 G59	3500 – 3600 Radiolocation US110	Private Land Mobile (90)	
3600 – 4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile			US245	3600 – 3650 FIXED-SATELLITE (space-to-Earth) US245 Radiolocation US110	Satellite Communications (25) Private Land Mobile (90)	
	S5435		3650 – 3700 USxxx	3650 – 3700 FIXED FIXED-SATELLITE (space-to-Earth) NGxxx USxxx	Fixed Microwave (101) Satellite Communications (25)	
	3700 – 4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700 – 4200	3700 – 4200 FIXED NG41 FIXED-SATELLITE (space-to-Earth)	Fixed Microwave (101) Satellite Communications (25)	
*	*	*	*	*	*	*

INTERNATIONAL FOOTNOTES

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S5.433 In Regions 2 and 3, in the band 3400-3600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.

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S5.435 In Japan, in the band 3620-3700 MHz, the radiolocation service is excluded.

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UNITED STATES (US) FOOTNOTES

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US110 In the frequency bands 3100-3300 MHz, 3500-3650 MHz, 5250-5350 MHz, 8500-9000 MHz, 9200-9300 MHz, 9500-10000 MHz, 13.4-14.0 GHz, 15.7-17.3 GHz, 24.05-24.25 GHz and 33.4-36.0 GHz, the non-Government radiolocation service shall be secondary to the Government radiolocation service and to airborne doppler radars at 8800 MHz, and shall provide protection to airport surface detection equipment (ASDE) operating between 15.7-16.2 GHz.

* * * * *

USxxx In the 3650-3700 MHz band, after January 1, 1999, Government operations in the radiolocation service may continue on a primary basis at three sites: Pascagoula, Mississippi (30° 22' North Latitude, 88° 29' West Longitude); Pensacola, Florida (30° 21' 28" North Latitude, 87° 16' 26" West Longitude); and Saint Inigoes, Maryland (38° 10' North Latitude, 76° 23' West Longitude). The Commission shall coordinate non-Government fixed stations within 80 kilometers of the grandfathered sites on a case-by-case basis with NTIA through the Frequency Assignment Subcommittee. Naval vessels shall not transmit in the 3650-3700 MHz band until the vessel is at least [distance to be determined] nautical miles off the coasts of the United States, Puerto Rico, the U.S. Virgin Islands, Guam, the Northern Mariana Islands, and American Samoa.

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NON-GOVERNMENT (NG) FOOTNOTES

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NGxxx In the 3650-3700 MHz band and for the fixed-satellite service (space-to-Earth), license applications for new earth stations, major amendments to pending earth station facilities applications, or applications for major modifications to existing earth station facilities filed on or after December 18, 1998 shall not be accepted.

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GOVERNMENT (G) FOOTNOTES

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G59 In the 902-928 MHz, 3100-3300 MHz, 3500-3650 MHz, 5250-5350 MHz, 8500-9000 MHz, 9200-9300 MHz, 13.4-14.0 GHz, 15.7-17.7 GHz and 24.05-24.25 GHz, all Government non-military radiolocation shall be secondary to military radiolocation, except in the subband 15.7-16.2 GHz airport surface detection equipment (ASDE) is permitted on a co-equal basis subject to coordination with the military departments.

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G110 Government ground-based stations in the aeronautical radionavigation service may be authorized between 3500-3650 MHz when accommodation in the 2700-2900 MHz band is not technically and/or economically feasible.

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Appendix B: Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act ("RFA"),[1] the Commission has prepared an Initial Regulatory Flexibility Analysis ("IRFA") of the possible significant economic impact on small entities by the policies and rules proposed in this *Notice of Proposed Rule Making and Order* (ET Docket No. 98-237). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on this *Notice of Proposed Rule Making and Order*, as provided in paragraph 22. The Office of Public Affairs, Reference Operations Division, shall send a copy of this *Notice of Proposed Rule Making and Order*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). This *Notice of Proposed Rule Making and Order* and the IRFA will be published in the Federal Register.

A. Need for and Objectives of the Proposed Rules.

This Notice proposes to allocate the 3650-3700 MHz band to the fixed service on a primary basis. We take this action on our own initiative in order to make this transfer spectrum available for commercial services. The adoption of this proposal would accommodate growing demand for fixed services.

B. Legal Basis.

This action is taken pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r).

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply.

The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[2] For the purposes of this Notice, the IRFA defines a "small business" to be the same as a "small business concern" under the Small Business Act,[3] unless the Commission has developed one or more definitions that are appropriate to its activities.[4] Under the Small Business Act, a "small business concern" is

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[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Public Law 104-121, 110 Stat. 847 (1996) ("CWAAA") Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFRA").

[2] *Id.* § 601(6).

[3] 15 U.S.C. § 632.

[4] *See* 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 5 U.S.C. § 632).

one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) meets any additional criteria established by the Small Business Administration ("SBA").[5]

The Commission has not developed a definition of small entities applicable to FSS licensees. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to Communications services, Not Elsewhere Classified. This definition provides that a small entity is one with no more than $11.0 million in annual receipts.[6] According to Census Bureau data., there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities.[7] We note that new services will be permitted under the adopted designations for FSS, and we are unable at this time to provide a more precise estimate of how many potential small entities will be providing these services.

As described, the designations we hereby adopt will permit wireless services, as broadly defined. Neither the Commission nor the SBA has developed a definition of small entities applicable to wireless services licensees. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to radiotelephone (wireless) companies. This provides that a small entity is a radiotelephone company employing no more than 1,500 persons.[8] According to the Bureau of the Census, only twelve radiotelephone firms out of a total of 1,178 such firms which operated during 1992 had 1,000 or more employees.[9] We note that new services will be permitted under the adopted designations for wireless services, and we are unable at this time to provide a more precise estimate of how many potential small entities will be providing these services.

The Commission has not yet determined or proposed how many licenses will be awarded, nor will it know how many licensees will be small businesses until the auction, if required, is held. Even after that, the Commission will not know how many licensees will partition their license areas or disaggregate their spectrum blocks, if partitioning and disaggregation are allowed. This proceeding proposes only to allocate the 3650-3700 MHz band to the non-Government fixed service generally. A future proceeding will address service rules specifically, and we will address small business concerns at that time.

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[5] 15 U.S.C. § 632.

[6] 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4899.

[7] U.S. Bureau of the Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications, and Utilities, UC92-S-1, Subject Series, Establishment and Firm Size, Table 2D, Employment Size of Firms, 1992, SIC Code 4899 (issued May 1995).

[8] 13 C.F.R. § 121.201, SIC code 4812.

[9] 1992 Census, Series UC92-S-1, at Table 5, SIC code 4812.

We invite comment on this analysis.

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements.

Rules that may apply to the licensing of these operations or other operating requirements will likely be addressed in a separate rule making proceeding and any reporting, recordkeeping and other compliance requirements will be addressed therein.

E. Significant Alternatives to Proposed Rules which Minimize Significant Economic Impact on Small Entities and Accomplish Stated Objectives.

No Petitions for Rule Making were filed to initiate this proceeding and there are no comments in this proceeding that suggest alternatives to this proposed allocation and associated technical requirements. We request comment on alternatives that might minimize the amount of economic impact on small entities.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules.

None.